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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/780,940	02/18/2004	Joel C. Mitchell	LEC01 P427	2291

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EXAMINER	
LEVKOVICH, NATALIA A	

ART UNIT	PAPER NUMBER
1743	

DATE MAILED: 11/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/780,940	MITCHELL ET AL
	Examiner	Art Unit
	Natalia Levkovich	1743

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on *18 February 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-35* is/are pending in the application.

4a) Of the above claim(s) *10-25* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9,26-35* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *1-35* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *18 February 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims 1-9, 26-35 drawn to an analyzer, classified in class 422, subclass 78.

II. Claims 10-20, drawn to a method of determining the concentration of a component in a sample, classified in class 436, subclass 155.

III. Claims 21-25, drawn to a variable ballast chamber, classified in class 422, subclass 99.

The inventions are distinct, each from the other because of the following reasons:

Inventions II and I are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case the apparatus can be used as a heater.

Inventions I and III are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination. The subcombination has separate utility such as a dispenser or a tool for measuring a gas volume.

Inventions II and III are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). In the instant case the different inventions have different modes of operation, different functions and different effects. The invention of Group II is directed toward a method for determining the concentration of elements comprising combusting a sample; while the invention of Group III is directed toward a variable volume ballast chamber, which can be used as dispenser or volumetric tool .

During a telephone conversation with Mr. Reick on 10/13/04 a provisional election was made with preservation of traverse to prosecute the invention of Group I, claims 1-9 and 26-35. Affirmation of this election must be made by applicant in replying to this Office action. Claims 10-25 were withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1 –5 and 26-29 are rejected under 35 U.S.C. 102(b) as anticipated by Bredeweg (USP 4,622,009).

Bredeweg; teaches "an analyzer for determining the carbon, hydrogen, and nitrogen content of an organic material. The analyzer includes a vertically oriented, U-shaped furnace including a combustion chamber … an equilibration vessel and means for conveying the constituent gases to the vessel and past CO.sub.2 and H.sub.2 O infrared cells to monitor the products of combustion. Means are provided for conveying the equilibrated gases past the infrared cells to obtain readings relating to carbon and hydrogen content. A doser doses an aliquot of the equilibrated gas into a nitrogen measurement apparatus to obtain a reading relating to nitrogen content" (Abstract). "Collection and equilibration vessel … includes cylinder ..and piston … slidably mounted therein." The " piston .. may be forced downwardly by introducing pressurized gas …"(col.5, lines 25-35). When the piston is forced downwardly by nitrogen, it " causes the equilibrated gases to pass … to both of detectors.. "(CO2 and H2O detectors-N.L.; col.7, lines 55-60).

"After piston …has traveled a fixed distance, detectors … are sampled by computer to provide an indication of the amount of water vapor and carbon dioxide respectively, in the equilibrated constituent gases" (col.7, lines 55-60).

The last quote supports the conclusion that although Bredeweg does not explicitly disclose a piston position sensor, it is inherent to the art that in order the control (computer) to recognize a certain fixed position of the piston, there should be some kind of position determining device (sensor) as well as a coding device (encoder). The computer provides the overall analyzer control including the steps of " sampling combustion detectors" and sequencing valves.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

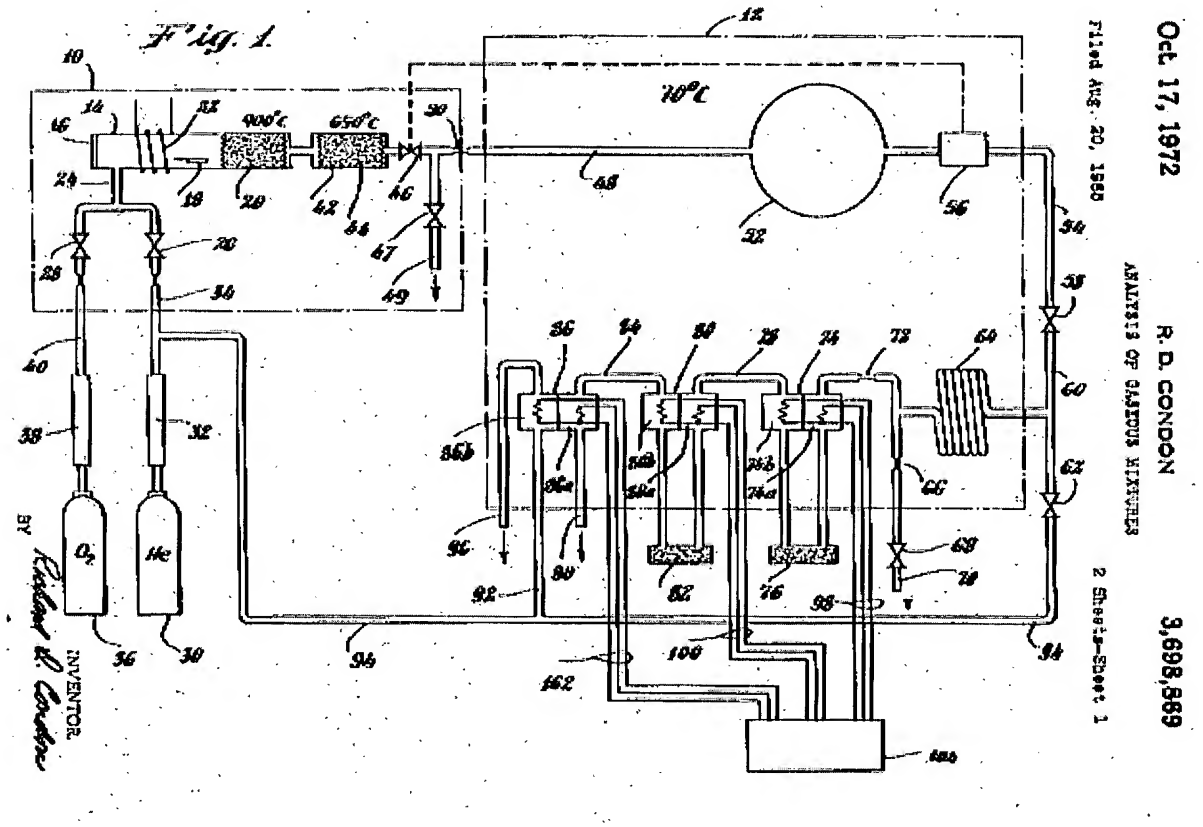
1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claims 1 –3 and 26-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Condon (USP 3,698,869) in view of Compton et al. (USP 5,563,339).

Condon teaches an "apparatus for quantitatively analyzing gaseous mixtures and, more particularly, ...analyzing the combustion products of organic samples...The organic sample is burned in oxygen and the products of combustion are forced into a reservoir by a carrier gas...; carrier gas displaces the retained portion at a constant pressure head through measuring cells responsive to water, carbon dioxide, and nitrogen (col.1, lines 15-25). The " reservoir and a balancing chamber which are interconnected by means of series-connected separation devices for removing water, carbon dioxide, and nitrogen in turn. A detector associated with each

separation device measures the difference in thermal conductivity between the gas entering and the gas leaving the device as an indication of the amount of the combustion product trapped therein. " (col.1, lines 50-55).

FIG. I illustrates the apparatus including " combustion tube 14..., reduction tube 42 ..., reservoir 52 ...and... an elongated delay volume 64 "(col.2, lines 50-70; col.3, lines 5-15) which may be substituted by "**piston-controlled changeable volume cylinders if desired**" (col.6, lines 10-15).



Condon does not teach a control coupled to a sensor for the detection of the position of the piston and calculating a volume correction factor for the concentration of gases.

Compton discloses an "analyzer for the direct determination of

liquid vapor pressure." (Abstract). "An analyzer controller produces control signals for the cylinder temperature control means, the adjustable piston rod driver, and the inlet and outlet valves as functions of first and second piston position sensor signals... The analyzer controller comprises calculator means for calculating a volume correction" (col.4, lines 30-35). -See the figure below.

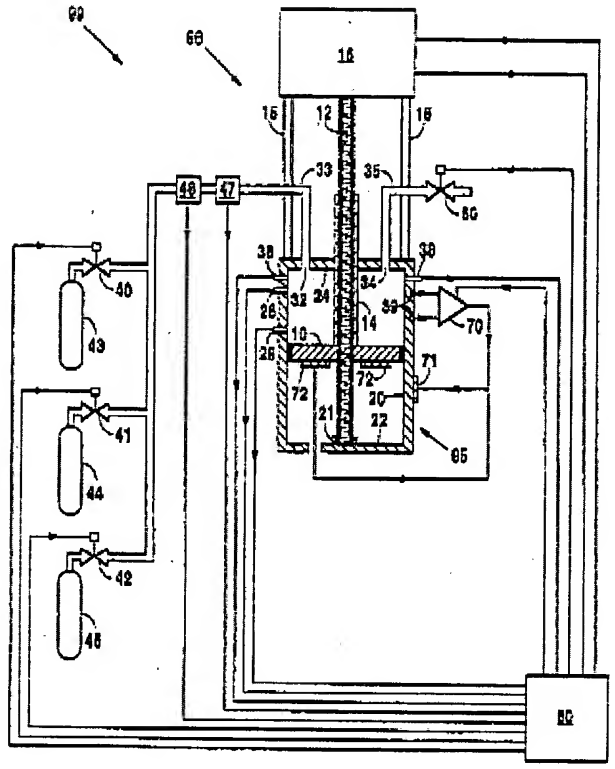


Fig. 1

Compton et al. teach, in column 3, lines 16-33, that the controlled analyzer is 'self-correcting", and that " in laboratory tests, such analyzers have been found to give rapid and precise determinations of vapor pressure..."

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have employed the above mentioned control in the apparatus of Condon

in order to provide a self-correcting analyzer which will give rapid and precise determination of vapor pressure, as taught by Compton et al.

7. Claims 4-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Condon (USP 3,698,869) in view of Compton et al. (USP 5,563,339) as applied to claims 1-3 and 26-30 above, and further in view of Cohrs et al. (USP 4,627,267).

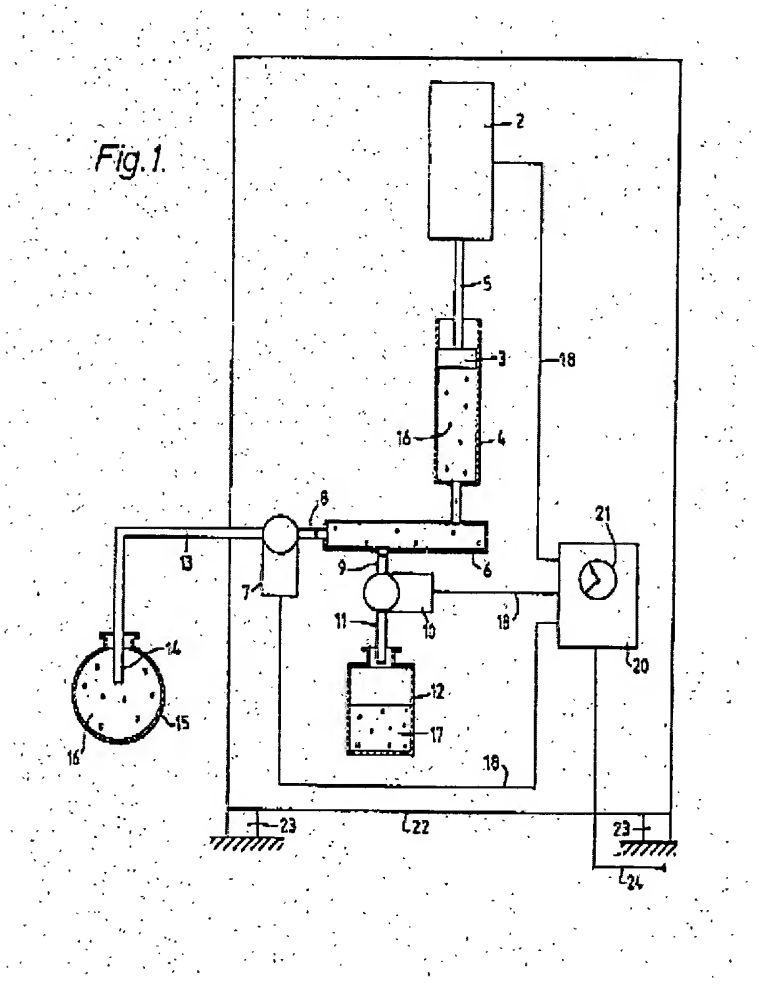
Condon) in view of Compton et al. do not teach a piston position sensor being a rotary encoder.

Cohrs teaches a mechanical displacement flowmeter calibrator incorporating a measuring cylinder having a measuring piston. The "rod is connected to a measuring piston adapted to travel through the measuring cylinder as a fluid barrier" (Abstract). "A rotary encoder ... is coupled to a shaft, to serve as a measuring piston displacement sensor"(col.6, line15). Cohrs teaches that this sensor output is used in the control console. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have employed the above mentioned sensor in the modified apparatus of Condon in order to accurately control fluid transfer.

8. Claims 30-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bredeweg (USP 4,622,009) in view of Compton et al. (USP 5,563,339) and in view of Jones (USP 4,527,436). The apparatus of Bredeweg considered previously does not obviously comprise an outlet valve coupled to sample gas outlet.

Jones discloses "an apparatus for sampling liquids " which "includes a piston (3) and cylinder (4) linked to a manifold with an inlet valve (7) leading to the pipeline (15) and a delivery valve (10) leading to a collection bottle

(12). With valve (7) open, reciprocation of the piston flushes the apparatus of old liquid. Cylinder (4) is then fully charged, valve (7) closed and the valve (10) opened so that, on the next stroke of piston (3), the contents of the cylinder (4) is discharged into collection vessel (12). A controller (20) synchronizes the movements of the valves and piston. A variation includes a return valve to enable liquid to be recirculated back to the pipeline, and also an apparatus with a moving probe (14), synchronized to the movement of piston (3)." (Abstract)-See Fig. 1 below.



Therefore, it would have been obvious to one of ordinary skill in the art at the time the

invention was made to have employed the outlet control valve in the apparatus of Bredeweg in order to re-circulate liquid to the pipeline.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Natalia Levkovich whose telephone number is 571-272-2462. The examiner can normally be reached on Mon-Fri, 8 a.m.-4p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on 571-272-1267. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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